Catalogue of American Amphibians and Reptiles.

Powell, R. 1992. *Anolis porcatus.*

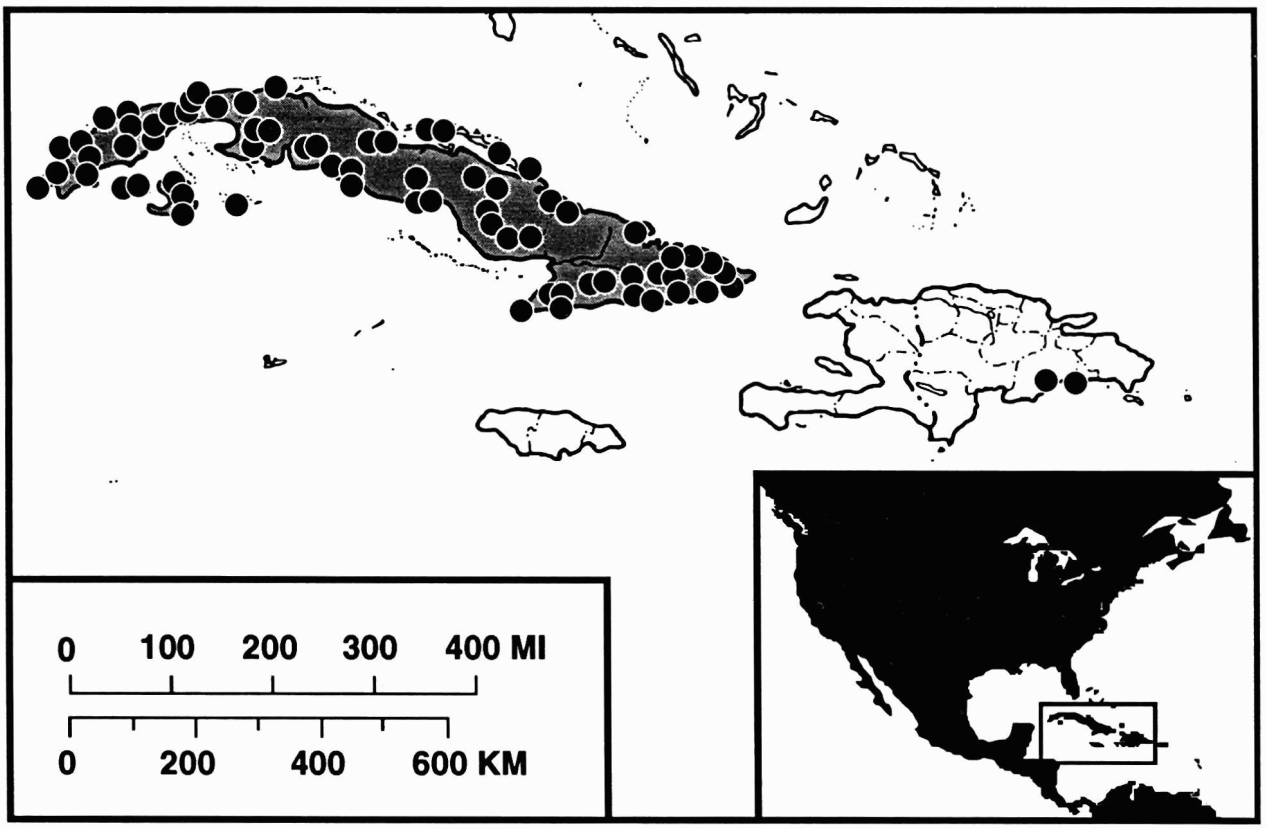
Anolis porcatus Gray
Lagartija Verde, Cuban Green Anole

Anolis Carolinensis: Duméril and Bibron, 1837:120 (part).
Anolis porcatus Gray, 1840:112. Type-locality, "Cuba and "Texas"." Syntypes, British Museum of Natural History (BMNH) 1946.8.12.71, 1946.8.11.66, 1946.8.12.67-.70, five adult males and a juvenile (sex unknown), date of collection unknown, presented by W.S. MacLeay (not examined by author). The first listed syntype is from "Texas," but see Distribution. Also see Remarks.
Anolis caroliniensis: Cocteau and Bibron, 1843:125 (part).
Anolius porcatus: Gray, 1845:201. *Lapsus.*
Anolis principalis var. *porcatus:* Cope, "1887" (1888):437 (part).
Anolis porcatus porcatus: Barbour, 1937:119.
Anolis carolinensis porcatus: Oliver, 1948:7.
Anolis porgatus: Otero, 1950:186. *Lapsus.*

• **Content.** No subspecies are recognized (but see Comment).

• **Definition.** *Anolis porcatus* is a medium-sized anole (males to 73 mm SVL, females smaller) characterized by a long, pointed snout, the frontal ridge higher than the canthal ridge in most males; nostril separated from the rostral by three scales; 3-4 rows of loreals; 1 scale between supraorbitals; 1-2 scales between the interparietal and supraorbital semicircles; 5 postrostrals; 4 postmentals; suboculars in contact with supralabials. Ventrals at midbody are in

Figure 1. Adult male *Anolis porcatus* from Santo Domingo, República Dominicana. Photograph by author.



Map. Distribution of *Anolis porcatus.* Solid circles represent locality records. The type-locality is too imprecise to plot.

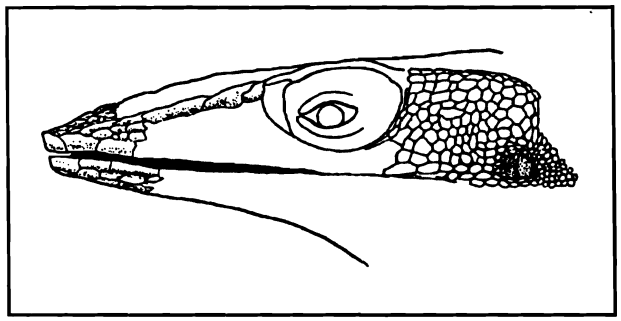


Figure 2. Head of male *Anolis porcatus* from Camaguey, Cuba (from Ruibal and Williams, 1961. Used with permission, Museum of Comparative Zoology, Harvard University).

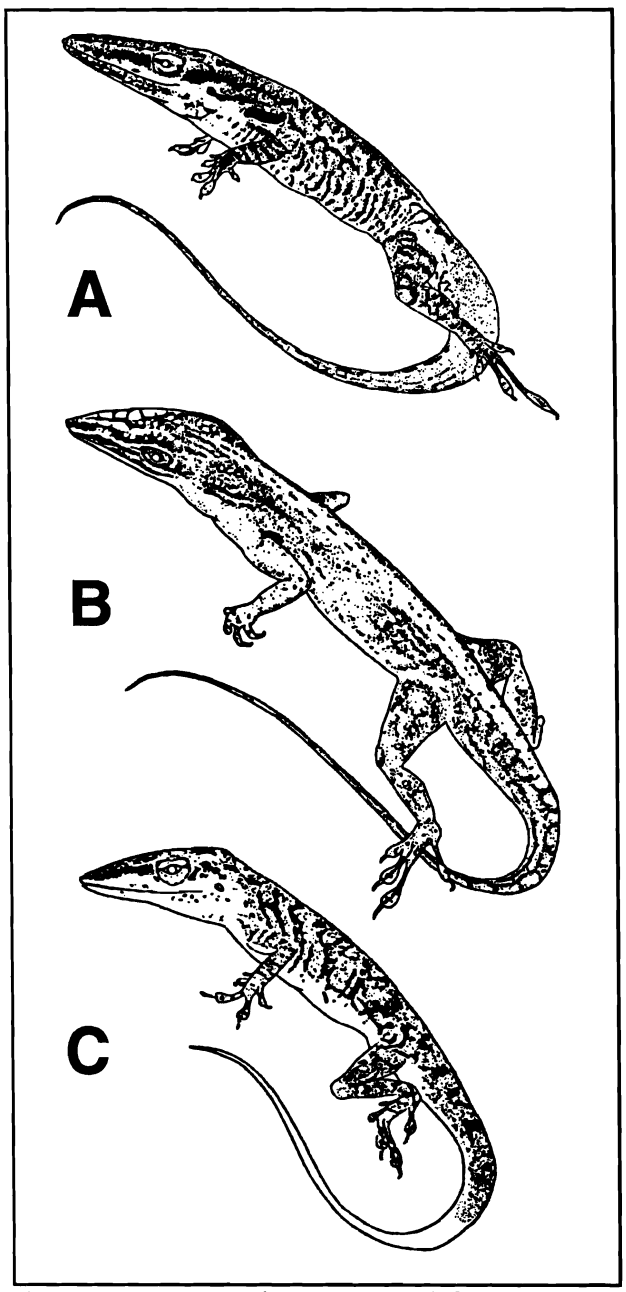


Figure 3. Variation in *Anolis porcatus:* A. Male from Pinar del Rio, Cuba, an example of a "western" *porcatus*; B. Male from Guantanamo, Oriente,Cuba, an example of an "eastern" *porcatus*; C. Male from Camaguey, Cuba, an example of a "central" *porcatus* (from Ruibal and Williams, 1961. Used with permission, Museum of Comparative Zoology, Harvard University).

transverse and diagonal rows. Ventrals and dorsals are faintly keeled and slightly imbricate. The ear opening is circular or only sightly oval (in some specimens from Pinar del Río the posterior margin of the ear opening is V-shaped). The tail is long and round, slightly depressed at the base, and weakly verticillate, with 4 scales/verticil. Supradigital scales are multicarinate.

The ground color can change from dark brown to bright green. The male color pattern differs in eastern, central, and western populations. Eastern *porcatus* have a distinct mid-dorsal light stripe bordered by dark pigment, longitudinal dark stripes on the chin and throat, a white-bordered ocellus above the forelimbs, and evidence of reticular markings and scattered white scales on some specimens. Central populations tend to be grey to light green or brown with a complicated pattern of dark and light reticulations and numerous white scales on the nape and body. Western males show a pattern of dark reticulations over at least part of the body with an elongate dark patch above the forelimbs, single scattered white scales on the nape and parts of the body, and a white stripe below the eye. Female patterns are less geographically variable, although central females usually have distinct white scales on their sides and eastern forms (and some western specimens) have a mid-dorsal stripe similar to eastern males.

The dewlap is reddish, pink to purplish-pink, or mauve. Females lack a dewlap, but often possess indications of pink color on the throat.

• **Diagnosis.** *Anolis porcatus* may be distinguished from sympatric congeners by the long pointed snout, prominent frontal ridges higher than canthal ridges in most specimens, the rostral bordered posteriorly by five scales, circular (or only slightly oval) ear openings (with a V-shaped posterior margin in some western specimens), and a reddish dewlap in males.

• **Descriptions.** In addition to those found in references cited in the synonymy and in many of the checklists and guides under Pertinent Literature, excellent descriptions are in Ruibal and Williams (1961), Ruibal (1967), and Schwartz and Henderson (1991).

• **Illustrations.** Hand-colored engravings illustrating an adult and details of the head, feet, vent, and scales are in Cocteau and Bibron (1843). Colored illustrations are in Schwartz and Henderson (1985). Otero (1950) and Obst et al. (1988) included black and white photographs, and Molle (1961) and Vogel (1965) color photographs of adult males. Peters and Schubert (1968) provided a black and white photograph of an adult female, Parmerlee et al. (1992) of attempted male-male displacement during coitus. Molle (1956) provided a color photograph of a hatchling. Line drawings of the head are in Stejneger (1917), Barbour and Ramsden (1919), Ruibal and Williams (1961), Ruibal (1964), and Sánchez Oria and Berovides Álvarez (1987), the latter illustrating variation in supraorbital configurations. A line drawing of a lateral view of the tail is in Stejneger (1917), of the lower jaw in Oliver (1948), of the toe lamellae in Collette (1961), and of the mental scale in Pérez-Beato and Berovides (1984). Ruibal and Williams (1961) also provided line drawings of specimens representing "western," "central," and "eastern" *porcatus*. Ruibal (1967) provided a diagram of the threat display of the species. Porter et al. (1989) included photographs of the karyotype and a meiotic cell squash of males; Porter et al. (1991) illustrated a hybridized karyotype.

• **Distribution.** *Anolis porcatus* is found islandwide on Cuba and the Isla de la Juventud/Archipiélago de los Canarreos (Cayo Cantiles): Cayos de San Felipe (Cayo Real, Cayo Juan García); Archipiélago de Sabana-Camagüey (Cayo Francés, Cayo Guajaba, Cayo Santa María); Archipiélago de los Colorados (Cayo Inés de Soto); Cayo la Reina off the northern coast of Pinar del Río; and probably on many other off-shore islets and islands (Schwartz and Henderson, 1988, 1991).

This species has been introduced into Santo Domingo, República Dominicana (Hispaniola) (Arias Cornielle, 1975; Schwartz and Thomas, 1975; Haneline, 1977; Williams, 1977; Schwartz et al., 1978; Garrido and Jaume, 1984; Henderson and Schwartz, 1984; Henderson et al., 1984; Schwartz and Henderson, 1985, 1988, 1991; Powell, 1990b; Powell et al., 1990). Powell and Parmerlee (1991) reported a second, apparently disjunct Dominican colony at the Aeropuerto de las Américas; more recent field work has indicated that this population has spread to the base of the peninsula on which the airport is situated.

Reports of its presence in Texas (Gray, 1840, 1845; Boulenger, 1885) and on Key West (Allen and Slatten, 1945; Smith and Kohler, 1977) are probably erroneous (Vance, 1987). Also, green anoles, variously identified as *A. carolinensis, A. carolinensis porcatus,* or *A. porcatus,* have been introduced on a number of Pacific islands (see Remarks).

The Cuban distribution has been illustrated in Ruibal and Williams (1961), the Hispaniolan range in Powell et al. (1990), the total West Indian distribution in Schwartz and Henderson (1991).

• **Fossil Record.** None.

• **Pertinent Literature.** The species is included in the checklists and guides of Gundlach (1880), Cope ("1887" [1888]), Stejneger (1917), Barbour and Ramsden (1916, 1919), Barbour (1916, 1930a, b, 1935, 1937), Alayo Dalmau (1951, 1955), Ruibal (1964), Buide (1967), Garrido and Schwartz (1968, 1969), Lando and Williams (1969), Schwartz and Thomas (1975), Schwartz et al. (1978), Garrido and Jaume (1984), Henderson and Schwartz (1984), Henderson et al. (1984), Schwartz and Henderson (1985, 1988, 1991), and Banks et al. (1987). Additional distributional records are in Sutcliffe (1952), Schwartz and Ogren (1956), Garrido (1973), Estrada et al. (1987), and Abreu et al. (1989). SEA/DVS (1990) provided an index of habitats in the Dominican Republic.

Other topics addressed in the literature include: ecology (Ruibal, 1958, 1961; Collette, 1961; Lando and Williams, 1969; Peters, 1970; Schoener, 1970; Arias Cornielle, 1975; Estrada and Novo Rodríguez, 1986), ecomorphology (Estrada and Silva Rodríguez, 1984; Schoener, 1988), species recognition (Williams and Rand, 1977), food habits (Otero, 1950; Alayón Garcia, 1976), color changes (Hadley, 1929), behavior (Ruibal, 1967; Powell, 1990a; Parmerlee et al., 1992), reproduction (Dunn, 1926; Rand, 1967), development (Pérez-Beato, 1982), parasitism (Barus and Coy Otero, 1969a, b; Coy Otero, 1970; Coy Otero and Barus, 1973, 1979; Coy Otero and Lorenzo Hernández, 1982; Baker, 1987), geographic variation (Pérez-Beato and Berovides, 1979, 1982, 1984; Espinosa Lopez et al., 1985; Sánchez Oria and Berovides Álvarez, 1987), karyotype (Gorman and Atkins, 1968; Porter et al., 1989), the evolutionary implication of the location of ribosomal DNA (Porter et al., 1991), relationship between variability of hepatic esterases and the degree of environmental stability (Mugica Valdés et al., 1982), general relationships (Barbour, 1928; Burnell and Hedges, 1990), geographic variation, relationship, and hybridization with *A. allisoni* (Ruibal and Williams, 1961), niche displacement by *A. allisoni* (Peters and Schubert, 1968); placement in the alpha group of anoles based on osteology (Etheridge, 1960), formal placement in the *carolinensis* superspecies (Williams, 1976), electrophoretic distinction from *A. carolinensis* (Buth et al., 1980), morphological distinction from and relationship with *A. carolinensis* (Garman, "1887" [1888]; Oliver, 1948; Williams, 1969), distinction from *A. brunneus* (Barbour, 1914), human exploitation (Barbour, 1937), care and reproduction in captivity (Molle, 1956, 1961; Rover, 1960; Markert, 1980), English common name (Collins et al., 1982; Collins, 1990).

• **Remarks.** Boulenger (1885) listed one male from Texas and five "males & yg." from Cuba, all from W.S. MacLeay, Esq., as the types for *Anolis porcatus.* However, data currently on file (Colin McCarthy, in litt. 09.VII.90) differ. BMNH 1946.8.11.66 is an adult male from "Texas," collector unknown; BMNH 1946.8.11.66 is an adult male presented by W.S. MacLeay; and BMNH 1946.8.12.67-.70 are three adult males and a juvenile from Mr. Leadbeater's collection. These discrepancies (see also Russell and Bauer, 1991) illustrate the kinds of problems in quality control of data inherent to natural history collections over time, and argue for the provision of adequate resources to maintain the accuracy of irreplaceable information.

Green anoles, variously identified as *A. carolinensis, A. carolinensis porcatus,* or *A. porcatus,* have been introduced to various Pacific islands, including the Hawaiian Islands, Guam, Saipan, and Chichi-Jima, Japan (Shaw and Breese, 1951; Oliver and Shaw, 1953; Ruibal, 1964; Hunsaker and Breese, 1967; Cochran and Goin, 1970; Anonymous, 1972; Flint, 1972; Smith and Kohler, 1977; Williams, 1977; McKeown, 1978; Jones, 1979; Matsumoto et al., 1980; Wilson and Porras, 1983; Hara, 1986; Hasegawa, 1986; Chan et al., 1987; Vance, 1987; Hasegawa et al., 1988; Schwartz and Henderson, 1988; Collins, 1990; Powell et al., 1990). Contrary to Vance's (1987) statements, however, these populations apparently all represent *A. carolinensis* (Hasegawa et al., 1988; Lazell, 1989; R.I. Crombie, in litt. 14 VI 90; G.C. Mayer, in litt. 3 VII 90; E.E. Williams, pers. comm.).

• **Etymology.** The specific epithet *porcatus* is presumedly derived from the Latin *porca* (= ridge between two furrows) in reference to the pronounced frontal ridges on the heads of males of this species.

• **Comment.** Ruibal (1964) suggested that *A. porcatus* may represent more than one species.

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